

PROJECT NUMBER: 2525
PROJECT TITLE: Tobacco Chemistry
PROJECT LEADER: R. R. Izac
PERIOD COVERED: September, 1988

I. NATURAL PRODUCTS CHEMISTRY

- A. Objective: To isolate, identify and/or analyze natural compounds with major emphasis on tobacco and tobacco products.
- B. Results: 1. A sample of nicotine was isolated from flavor pellets and purified for T. Sanders. 2. A sample of cigarette paper, which contained spots, and a sample of Art filler was analyzed for solanesol by TLC and NMR (R. Bassfield) for T. Sanders. Dichloromethane extracts of both samples looked identical, containing solanesol and other tobacco components. Nicotine was not observed in these extracts.
- C. References:
1. Izac, R. Notebook No. 8632.
 2. Core, M. Notebook No. 8608.

II. LOW NICOTINE

- A. Objective: To examine characteristics of unextracted nicotine.
- B. Results:
1. Grafted tobacco on a tomato rootstock appears to contain only extractable nicotine. A group of tobacco on tomato and tomato on tobacco grafts have been completed.
- C. Plans: Continue to investigate genetic and cultural factors which influence the amount of unextracted nicotine in tobacco materials.
- D. References:
1. Izac, R. Notebook No. 8632.
 2. Bass, R. Notebook No. 8607.
 3. West, G. Notebook No. 8559.

III. GREENHOUSE STUDIES

- A. Objective: To maintain the R&D greenhouses, to conduct plant research studies and to provide greenhouse-grown tobacco materials for support of other R&D programs.
- B. Results: The harvest of roots from Group 14 of the hydroponic Burley 21 plants has been completed and about 16kg of fresh root material was supplied. During the harvest of Group 14, one plant was selected for Chloride analysis to determine if the chloride content varies from one area to another within a leaf. The hydroponic culture equipment was set up and 52 plants of Burley 21

were transplanted for Group 15. These plants are being grown for Project 1904.

A total of 10 plant grafts were made using Burley 21 as the rootstock and *N. glutinosa* as the scion. The purpose of this is to provide a plant which boosts the production of nornicotine.

The greenhouse maintenance operations including seeding, transplanting, nutrient solution preparation and other cultural tasks were completed.

The experimental flue-cured and Oriental tobacco grown at Whiteville Research Station have been harvested and are being cured.

- C. Plans: Maintain production of fresh root tissue by hydroponic culture. Monitor the field plots as needed.
- D. References:
 - 1. Bass, R. Notebook No. 8607.
 - 2. West, G. Notebook No. 8559.

IV. SUPPORT ACTIVITIES

- A. Objective: To provide requested assistance for special projects.
- B. Results: 1. About five pounds of poly(1-menthol-isopropenylcarbonate) (CR# 1417) was cleaned up. 2. The Georgia Tobacco Variety Evaluation Display was attended at Hahird, GA., and, in cooperation with Leaf Department, tobacco samples were evaluated. 3. A sample of pentylated cyclodextran was purified for H. Secor.
- C. Plans: Analysis of the CR# 1417 for purity is in progress.
- D. References:
 - 1. Izac, R. Notebook No. 8632.
 - 2. Bass, R. Notebook No. 8607.

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